FNBC Project Report - Math & Comparison

Mathematical Summary:

Power Output:

- BV100: 100 microwatts (uW)

- FNBC (5-layer fractal): 1,048.6 microwatts (uW) or 1.05 milliwatts

Power Increase:

- 1,048.6 / 100 = 10.486x increase

Total Energy over 50 Years:

- FNBC: 1.05 milliwatts * 24 hours/day * 365 days/year * 50 years = ~459.29 watt-hours

Voltage:

- BV100: 3V per unit

- FNBC: 3V per unit, scalable to 30V with 10-unit series stack

Required FNBC Units to Match 100W Load:

- 100 watts / 0.00105 watts = ~95,365 units

Side-by-Side Device Comparison

Power Output

- BV100: 100 uW

- FNBC: 1,048.6 uW

Voltage per Unit

- BV100: 3V

- FNBC: 3V (30V stackable)

Form Factor

- BV100: 15x15x5 mm core
- FNBC: Modular card-based

Energy Source

- BV100: Nickel-63
- FNBC: Nickel-63 (fractal layout)

Modularity

- BV100: None
- FNBC: Fully modular

Pulse Tuning

- BV100: None
- FNBC: Yes (Quantum Pulse Regulator)

Radiation Management

- BV100: Diamond shielding (passive)
- FNBC: Fractal Halo Field (active redirection)

Thermal Handling

- BV100: Passive
- FNBC: Fractal cooling veins

Estimated Lifespan

- BV100: 50 years
- FNBC: 50+ years

Energy Over 50 Years

- BV100: ~43.8 Wh
- FNBC: ~459.29 Wh

Design Intelligence

- BV100: None
- FNBC: Yes (resonant sensing)